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☐ Final Report
☐ Re-Issued Report
☑ Revised Report

Report Date:
11-Apr-17 16:19

Laboratory Report

Gulf Oil L.P.
281 Eastern Avenue
Chelsea, MA 02150
Attn: Andrew P. Adams

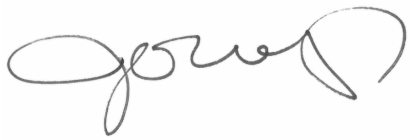
Project: Gulf Terminal - Chelsea, MA
Project #: Gulf Chelsea

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC32731-01	Chelsea Creek	Surface Water	23-Mar-17 10:00	23-Mar-17 15:00
SC32732-01	Outfall 003	Surface Water	23-Mar-17 10:00	23-Mar-17 15:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:



June O'Connor
Laboratory Director

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 23 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our Quality'web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the MDL. This report includes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the detection limit are reported as "<" (less than) the detection limit in this report.

The samples were received 2.9 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

Please note this work order contains 24 pages of analytical data from New England Bioassay.

Report Re-issue Case Narrative 4/11/17:

The laboratory report for SC32731/32 was re-issued to report Phenol by 8270D only.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

EPA 200.7

Duplicates:

1705143-DUP1 *Source: SC32731-01*

The Reporting Limit has been raised to account for matrix interference.

Cadmium
Copper
Lead
Nickel
Zinc

Samples:

SC32731-01 *Chelsea Creek*

The Reporting Limit has been raised to account for matrix interference.

Cadmium
Lead
Nickel
Zinc

EPA 200.8

Spikes:

1705144-PS1 *Source: SC32731-01*

The spike recovery was outside acceptance limits for the MS, MSD and/or PS due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

Copper

Duplicates:

1705144-DUP1 *Source: SC32731-01*

EPA 200.8

Duplicates:

1705144-DUP1 *Source: SC32731-01*

MRL raised to correlate to batch QC reporting limits.

Copper

The Reporting Limit has been raised to account for matrix interference.

Chromium
Copper

Samples:

SC32731-01 *Chelsea Creek*

MRL raised to correlate to batch QC reporting limits.

Copper

The Reporting Limit has been raised to account for matrix interference.

Copper

SC32732-01 *Outfall 003*

The Reporting Limit has been raised to account for matrix interference.

Chromium

SM4500-Cl-G (11)

Spikes:

1705084-MS1 *Source: SC32731-01*

The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.

Total Residual Chlorine

1705084-MSD1 *Source: SC32731-01*

The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.

Total Residual Chlorine

SM4500-NH3 C. (11)

Laboratory Control Samples:

1705173 SRM

Ammonia as N percent recovery 84 (86-114) is outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Chelsea Creek
Outfall 003

SW846 8260C

Calibration:

1703030

Analyte quantified by quadratic equation type calibration.

Naphthalene

SW846 8260C

Calibration:

1703030

This affected the following samples:

1705104-BLK1
1705104-BS1
1705104-BSD1
Chelsea Creek
Outfall 003
S703239-ICV1
S703263-CCV1

Laboratory Control Samples:

1705104 BS/BSD

Ethanol percent recoveries (138/134) are outside individual acceptance criteria (70-130), but within overall method allowances.
All reported results of the following samples are considered to have a potentially high bias:

Outfall 003

Samples:

S703263-CCV1

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Ethanol (37.8%)

This affected the following samples:

1705104-BLK1
1705104-BS1
1705104-BSD1
Outfall 003

SW846 8270D

Samples:

S703277-CCV1

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

2,4-Dinitrophenol (30.7%)
4,6-Dinitro-2-methylphenol (34.6%)
4-Nitrophenol (23.5%)

This affected the following samples:

1705073-BLK1
1705073-BS1
1705073-BSD1

SW846 8270D SIM

Laboratory Control Samples:

1705073 BSD

Indeno (1,2,3-cd) pyrene RPD 25% (20%) is outside individual acceptance criteria.

Naphthalene RPD 21% (20%) is outside individual acceptance criteria.

Samples:

SW846 8270D SIM

Samples:

S703276-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Dibenzo (a,h) anthracene (28.1%)
Indeno (1,2,3-cd) pyrene (21.4%)

This affected the following samples:

1705073-BLK2
1705073-BS2
1705073-BSD2
Chelsea Creek
Outfall 003

Sample Acceptance Check Form

Client:	Gulf Oil L.P.
Project:	Gulf Terminal - Chelsea, MA / Gulf Chelsea
Work Order:	SC32731
Sample(s) received on:	3/23/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Sample Acceptance Check Form

Client:	Gulf Oil L.P.
Project:	Gulf Terminal - Chelsea, MA / Gulf Chelsea
Work Order:	SC32732
Sample(s) received on:	3/23/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC32731-01 **Client ID:** Chelsea Creek

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Copper	0.0972	R01, R(	0.00800	mg/l	EPA 200.8
Salinity	28.8		1.00	ppt (1000)	SM 2520 (01)
Total Solids	32800		100	mg/l	SM2540 B (11)
Total Suspended Solids	13.5		2.5	mg/l	SM2540D (11)
Total Residual Chlorine	0.034		0.020	mg/l	SM4500-Cl-G (11)
Total Organic Carbon	2.39		1.00	mg/l	SM5310B (00, 11)

Lab ID: SC32732-01 **Client ID:** Outfall 003

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Cadmium	0.0004	J	0.0025	mg/l	EPA 200.7
Copper	0.0092		0.0050	mg/l	EPA 200.7
Lead	0.0095		0.0075	mg/l	EPA 200.7
Nickel	0.0044	J	0.0050	mg/l	EPA 200.7
Zinc	0.0393		0.0050	mg/l	EPA 200.7
Chromium	0.00979	R01, D	0.00500	mg/l	EPA 200.8
Salinity	1.70		1.00	ppt (1000)	SM 2520 (01)
Total Solids	1940		5.00	mg/l	SM2540 B (11)
Total Suspended Solids	25.0		2.5	mg/l	SM2540D (11)
Total Residual Chlorine	0.079		0.020	mg/l	SM4500-Cl-G (11)
Ammonia as N	0.420		0.200	mg/l	SM4500-NH3 C. (11)
Total Organic Carbon	5.58		1.00	mg/l	SM5310B (00, 11)

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Chelsea Creek	Gulf Chelsea	Surface Water	23-Mar-17 10:00	23-Mar-17
SC32731-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Aromatics by SW846 8260 Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	24-Mar-17	24-Mar-17	GMA	1705104	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.4	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*106*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*101*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*106*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*104*			*70-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.051		µg/l	0.051	0.031	1	SW846 8270D SIM	24-Mar-17	25-Mar-17	MSL	1705073	
208-96-8	Acenaphthylene	< 0.051		µg/l	0.051	0.032	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.051		µg/l	0.051	0.027	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	< 0.051		µg/l	0.051	0.024	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 0.051		µg/l	0.051	0.036	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 0.051		µg/l	0.051	0.035	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 0.051		µg/l	0.051	0.027	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 0.051		µg/l	0.051	0.028	1	"	"	"	"	"	
218-01-9	Chrysene	< 0.051		µg/l	0.051	0.024	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 0.051		µg/l	0.051	0.026	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 0.051		µg/l	0.051	0.020	1	"	"	"	"	"	
86-73-7	Fluorene	< 0.051		µg/l	0.051	0.030	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.051		µg/l	0.051	0.022	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.051		µg/l	0.051	0.027	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 0.051		µg/l	0.051	0.027	1	"	"	"	"	"	
129-00-0	Pyrene	< 0.051		µg/l	0.051	0.022	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo (e) pyrene-d12*	*100*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
Prepared by method General Prep-Metal													
	Preservation	**Field Preserved; pH<2 confirmed**		N/A			1	EPA 200/6000 methods	24-Mar-17		BK	1705119	
Total Metals by EPA 200 Series Methods													
7440-43-9	Cadmium	< 0.0020	U, R01, D	mg/l	0.0125	0.0020	5	EPA 200.7	27-Mar-17	31-Mar-17	TBC	1705143	X
7440-50-8	Copper	**0.0972**	R01, R06, D	mg/l	0.00800	0.00089	10	EPA 200.8	"	28-Mar-17	edt	1705144	X
7440-02-0	Nickel	< 0.0050	U, R01, D	mg/l	0.0250	0.0050	5	EPA 200.7	"	31-Mar-17	TBC	1705143	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Chelsea Creek SC32731-01	Gulf Chelsea	Surface Water	23-Mar-17 10:00	23-Mar-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 200 Series Methods													
7439-92-1	Lead	< 0.0171	U, R01, D	mg/l	0.0375	0.0171	5	EPA 200.7	27-Mar-17	31-Mar-17	TBC	1705143	X
7440-66-6	Zinc	< 0.0136	U, R01, D	mg/l	0.0250	0.0136	5	"	"	"	"	"	X
General Chemistry Parameters													
7782-50-5	Total Residual Chlorine	**0.034**		mg/l	0.020	0.006	1	SM4500-Cl-G (11)	24-Mar-17 09:36	24-Mar-17 16:43	RLT	1705084	X
Prepared by method SM4500-NH3 B (11)													
	Ammonia as N	< 0.200		mg/l	0.200	0.118	1	SM4500-NH3 C. (11)	27-Mar-17	27-Mar-17	AHK	1705173	X
	pH	**7.91**		pH Units			1	ASTM D 1293-99B	23-Mar-17 17:56	23-Mar-17 18:30	BD	1705079	X
	Salinity	**28.8**		ppt (1000)	1.00	0.144	1	SM 2520 (01)	28-Mar-17	28-Mar-17	BD	1705216	
	Total Solids	**32,800**		mg/l	100	30.6	1	SM2540 B (11)	25-Mar-17	28-Mar-17	CMB	1705113	
	Total Suspended Solids	**13.5**		mg/l	2.5	0.8	1	SM2540D (11)	28-Mar-17	30-Mar-17	CMB	1705207	X
	Total Organic Carbon	**2.39**		mg/l	1.00	0.246	1	SM5310B (00, 11)	30-Mar-17	30-Mar-17	RLT	1705454	X
Aquatic Toxicity													
Prepared by method NA													
Analysis performed by GZA Geoenvironmental, Inc. - Manchester, CT -*													
	Aquatic Toxicity	**See Report**		N/A			1	EPA-821-R-02-012		10-Apr-17		'[none]'	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Outfall 003	Gulf Chelsea	Surface Water	23-Mar-17 10:00	23-Mar-17
SC32732-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260 Prepared by method SW846 5030 Water MS													
71-43-2	Benzene	< 1.00		µg/l	1.00	0.28	1	SW846 8260C	24-Mar-17	24-Mar-17	GMA	1705104	
100-41-4	Ethylbenzene	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.00		µg/l	1.00	0.24	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.00		µg/l	1.00	0.35	1	"	"	"	"	"	
108-88-3	Toluene	< 1.00		µg/l	1.00	0.30	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 1.00		µg/l	1.00	0.47	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.00		µg/l	2.00	0.38	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0	5.90	1	"	"	"	"	"	
64-17-5	Ethanol	< 200		µg/l	200	30.9	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*102*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*102*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*98*			*70-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
Acid Extractables/Phenols Prepared by method SW846 3510C													
108-95-2	Phenol	< 1.38	U	µg/l	7.04	1.38	1	SW846 8270D	24-Mar-17	25-Mar-17	MSL	1705073	
Surrogate recoveries:													
367-12-4	*2-Fluorophenol*	*45*			*15-110 %*			"	"	"	"	"	
4165-62-2	*Phenol-d5*	*31*			*15-110 %*			"	"	"	"	"	
SVOCs by SIM													
83-32-9	Acenaphthene	< 0.070		µg/l	0.070	0.043	1	SW846 8270D SIM	"	25-Mar-17	MSL	"	
208-96-8	Acenaphthylene	< 0.070		µg/l	0.070	0.044	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.070		µg/l	0.070	0.037	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	< 0.070		µg/l	0.070	0.033	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 0.070		µg/l	0.070	0.051	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 0.070		µg/l	0.070	0.049	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 0.070		µg/l	0.070	0.038	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 0.070		µg/l	0.070	0.039	1	"	"	"	"	"	
218-01-9	Chrysene	< 0.070		µg/l	0.070	0.033	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 0.070		µg/l	0.070	0.036	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 0.070		µg/l	0.070	0.028	1	"	"	"	"	"	
86-73-7	Fluorene	< 0.070		µg/l	0.070	0.042	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.070		µg/l	0.070	0.030	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.070		µg/l	0.070	0.038	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 0.070		µg/l	0.070	0.037	1	"	"	"	"	"	
129-00-0	Pyrene	< 0.070		µg/l	0.070	0.031	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo (e) pyrene-d12*	*111*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods Prepared by method General Prep-Metal													

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Outfall 003 SC32732-01	Gulf Chelsea	Surface Water	23-Mar-17 10:00	23-Mar-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 200/6000 Series Methods													
Prepared by method General Prep-Metal													
	Preservation	**Field Preserved; pH<2 confirmed**		N/A			1	EPA 200/6000 methods	24-Mar-17		BK	1705119	
Total Metals by EPA 200 Series Methods													
7440-43-9	Cadmium	**0.0004**	J	mg/l	0.0025	0.0004	1	EPA 200.7	27-Mar-17	28-Mar-17	EDT	1705143	X
7440-47-3	Chromium	**0.00979**	R01, D	mg/l	0.00500	0.00306	10	EPA 200.8	"	28-Mar-17	edt	1705144	X
7440-50-8	Copper	**0.0092**		mg/l	0.0050	0.0029	1	EPA 200.7	"	31-Mar-17	tbc	1705143	X
7440-02-0	Nickel	**0.0044**	J	mg/l	0.0050	0.0010	1	"	"	28-Mar-17	"	"	X
7439-92-1	Lead	**0.0095**		mg/l	0.0075	0.0034	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.0393**		mg/l	0.0050	0.0027	1	"	"	"	"	"	X
General Chemistry Parameters													
7782-50-5	Total Residual Chlorine	**0.079**		mg/l	0.020	0.006	1	SM4500-Cl-G (11)	24-Mar-17 09:36	24-Mar-17 16:41	RLT	1705084	X
Prepared by method SM4500-NH3 B (11)													
	Ammonia as N	**0.420**		mg/l	0.200	0.118	1	SM4500-NH3 C. (11)	27-Mar-17	27-Mar-17	AHK	1705173	X
	pH	**7.21**		pH Units			1	ASTM D 1293-99B	23-Mar-17 17:56	23-Mar-17 18:30	BD	1705079	X
	Salinity	**1.70**		ppt (1000)	1.00	0.144	1	SM 2520 (01)	28-Mar-17	28-Mar-17	BD	1705216	
	Total Solids	**1,940**		mg/l	5.00	1.53	1	SM2540 B (11)	25-Mar-17	28-Mar-17	CMB	1705113	
	Total Suspended Solids	**25.0**		mg/l	2.5	0.8	1	SM2540D (11)	28-Mar-17	30-Mar-17	CMB	1705207	X
	Total Organic Carbon	**5.58**		mg/l	1.00	0.246	1	SM5310B (00, 11)	30-Mar-17	30-Mar-17	RLT	1705454	X
Microbiological Analyses													
	Fecal Coliforms	**2**	D	CFU/100 ml			2	SM 9222D-97	23-Mar-17 15:52	23-Mar-17 15:52	NV	1705063	X
Aquatic Toxicity													
Prepared by method NA													
Analysis performed by GZA Geoenvironmental, Inc. - Manchester, CT -*													
	Aquatic Toxicity	**See Report**		N/A			1	EPA-821-R-02-012		10-Apr-17		'[none]'	
Subcontracted Analyses													
Prepared by method 380670													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
	Oil and Grease by EPA 1664A	< 1.4		mg/L	1.4	1.4	1	E1664A		28-Mar-17 07:58	CT007	380670A	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1705104 - SW846 5030 Water MS										
Blank (1705104-BLK1)					Prepared & Analyzed: 24-Mar-17					
Benzene	< 1.00		µg/l	1.00						
Benzene	< 1.0		µg/l	1.0						
Ethylbenzene	< 1.00		µg/l	1.00						
Methyl tert-butyl ether	< 1.00		µg/l	1.00						
Naphthalene	< 1.00		µg/l	1.00						
Ethylbenzene	< 1.0		µg/l	1.0						
Toluene	< 1.00		µg/l	1.00						
Naphthalene	< 1.0		µg/l	1.0						
Toluene	< 1.0		µg/l	1.0						
Vinyl chloride	< 1.00		µg/l	1.00						
m,p-Xylene	< 2.00		µg/l	2.00						
o-Xylene	< 1.00		µg/l	1.00						
Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0						
m,p-Xylene	< 2.0		µg/l	2.0						
o-Xylene	< 1.0		µg/l	1.0						
Ethanol	< 200		µg/l	200						
Surrogate: 4-Bromofluorobenzene	*50.7*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*50.3*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*49.7*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*50.7*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*50.3*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*49.7*		µg/l		*50.0*		*99*	*70-130*		
LCS (1705104-BS1)					Prepared & Analyzed: 24-Mar-17					
Benzene	**22.3**		µg/l		20.0		111	70-130		
Benzene	**22.3**		µg/l		20.0		111	70-130		
Ethylbenzene	**23.0**		µg/l		20.0		115	70-130		
Methyl tert-butyl ether	**19.9**		µg/l		20.0		100	70-130		
Ethylbenzene	**23.0**		µg/l		20.0		115	70-130		
Naphthalene	**18.6**		µg/l		20.0		93	70-130		
Toluene	**22.2**		µg/l		20.0		111	70-130		
Naphthalene	**18.6**		µg/l		20.0		93	70-130		
Toluene	**22.2**		µg/l		20.0		111	70-130		
Vinyl chloride	**21.3**		µg/l		20.0		106	70-130		
m,p-Xylene	**23.2**		µg/l		20.0		116	70-130		
o-Xylene	**22.7**		µg/l		20.0		114	70-130		
Tert-Butanol / butyl alcohol	**224**		µg/l		200		112	70-130		
m,p-Xylene	**23.2**		µg/l		20.0		116	70-130		
o-Xylene	**22.7**		µg/l		20.0		114	70-130		
Ethanol	**551**	QC2	µg/l		400		138	70-130		
Surrogate: 4-Bromofluorobenzene	*51.3*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Toluene-d8	*50.7*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.7*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Dibromofluoromethane	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*51.3*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Toluene-d8	*50.7*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.7*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: Dibromofluoromethane	*51.1*		µg/l		*50.0*		*102*	*70-130*		
LCS Dup (1705104-BSD1)					Prepared & Analyzed: 24-Mar-17					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1705104 - SW846 5030 Water MS										
LCS Dup (1705104-BSD1)					Prepared & Analyzed: 24-Mar-17					
Benzene	**20.9**		µg/l		20.0		105	70-130	6	20
Benzene	**20.9**		µg/l		20.0		105	70-130	6	20
Ethylbenzene	**21.2**		µg/l		20.0		106	70-130	8	20
Methyl tert-butyl ether	**20.3**		µg/l		20.0		101	70-130	2	20
Ethylbenzene	**21.2**		µg/l		20.0		106	70-130	8	20
Naphthalene	**18.9**		µg/l		20.0		94	70-130	2	20
Toluene	**20.6**		µg/l		20.0		103	70-130	8	20
Naphthalene	**18.9**		µg/l		20.0		94	70-130	2	20
Toluene	**20.6**		µg/l		20.0		103	70-130	8	20
Vinyl chloride	**19.0**		µg/l		20.0		95	70-130	11	20
m,p-Xylene	**21.1**		µg/l		20.0		106	70-130	9	20
o-Xylene	**21.0**		µg/l		20.0		105	70-130	8	20
Tert-Butanol / butyl alcohol	**241**		µg/l		200		121	70-130	7	20
m,p-Xylene	**21.1**		µg/l		20.0		106	70-130	9	20
o-Xylene	**21.0**		µg/l		20.0		105	70-130	8	20
Ethanol	**534**	QC2	µg/l		400		134	70-130	3	20
Surrogate: 4-Bromofluorobenzene	*51.0*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*51.0*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*50.8*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*51.0*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*51.0*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*50.8*		µg/l		*50.0*		*102*	*70-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1705073 - SW846 3510C										
Blank (1705073-BLK1)					Prepared: 24-Mar-17 Analyzed: 25-Mar-17					
Benzoic acid	< 1.99	U	µg/l	1.99						
4-Chloro-3-methylphenol	< 1.23	U	µg/l	1.23						
2-Chlorophenol	< 1.26	U	µg/l	1.26						
2,4-Dichlorophenol	< 1.21	U	µg/l	1.21						
2,4-Dimethylphenol	< 1.41	U	µg/l	1.41						
4,6-Dinitro-2-methylphenol	< 1.87	U	µg/l	1.87						
2,4-Dinitrophenol	< 2.15	U	µg/l	2.15						
2-Methylphenol	< 1.45	U	µg/l	1.45						
3 & 4-Methylphenol	< 1.45	U	µg/l	1.45						
2-Nitrophenol	< 1.45	U	µg/l	1.45						
4-Nitrophenol	< 2.92	U	µg/l	2.92						
Pentachlorophenol	< 1.87	U	µg/l	1.87						
Phenol	< 0.983	U	µg/l	0.983						
2,4,5-Trichlorophenol	< 1.19	U	µg/l	1.19						
2,4,6-Trichlorophenol	< 1.08	U	µg/l	1.08						
Surrogate: 2-Fluorophenol	*47.9*		µg/l		*50.0*		*96*	*15-110*		
Surrogate: Phenol-d5	*46.6*		µg/l		*50.0*		*93*	*15-110*		
LCS (1705073-BS1)					Prepared: 24-Mar-17 Analyzed: 25-Mar-17					
Benzoic acid	**39.8**		µg/l	1.99	50.0		80	30-130		
4-Chloro-3-methylphenol	**37.3**		µg/l	1.23	50.0		75	30-130		
2-Chlorophenol	**37.5**		µg/l	1.26	50.0		75	30-130		
2,4-Dichlorophenol	**36.8**		µg/l	1.21	50.0		74	30-130		
2,4-Dimethylphenol	**35.4**		µg/l	1.41	50.0		71	30-130		
4,6-Dinitro-2-methylphenol	**52.1**		µg/l	1.87	50.0		104	30-130		
2,4-Dinitrophenol	**42.4**		µg/l	2.15	50.0		85	30-130		
2-Methylphenol	**36.1**		µg/l	1.45	50.0		72	30-130		
3 & 4-Methylphenol	**38.6**		µg/l	1.45	50.0		77	30-130		
2-Nitrophenol	**40.4**		µg/l	1.45	50.0		81	30-130		
4-Nitrophenol	**50.0**		µg/l	2.92	50.0		100	30-130		
Pentachlorophenol	**32.7**		µg/l	1.87	50.0		65	30-130		
Phenol	**35.5**		µg/l	0.983	50.0		71	30-130		
2,4,5-Trichlorophenol	**42.0**		µg/l	1.19	50.0		84	30-130		
2,4,6-Trichlorophenol	**38.8**		µg/l	1.08	50.0		78	30-130		
Surrogate: 2-Fluorophenol	*45.2*		µg/l		*50.0*		*90*	*15-110*		
Surrogate: Phenol-d5	*48.4*		µg/l		*50.0*		*97*	*15-110*		
LCS Dup (1705073-BSD1)					Prepared: 24-Mar-17 Analyzed: 25-Mar-17					
Benzoic acid	**40.4**		µg/l	1.99	50.0		81	30-130	2	20
4-Chloro-3-methylphenol	**38.3**		µg/l	1.23	50.0		77	30-130	3	20
2-Chlorophenol	**37.2**		µg/l	1.26	50.0		74	30-130	0.8	20
2,4-Dichlorophenol	**39.2**		µg/l	1.21	50.0		78	30-130	6	20
2,4-Dimethylphenol	**35.2**		µg/l	1.41	50.0		70	30-130	0.6	20
4,6-Dinitro-2-methylphenol	**51.9**		µg/l	1.87	50.0		104	30-130	0.3	20
2,4-Dinitrophenol	**45.2**		µg/l	2.15	50.0		90	30-130	7	20
2-Methylphenol	**34.5**		µg/l	1.45	50.0		69	30-130	4	20
3 & 4-Methylphenol	**37.6**		µg/l	1.45	50.0		75	30-130	3	20
2-Nitrophenol	**38.5**		µg/l	1.45	50.0		77	30-130	5	20
4-Nitrophenol	**51.1**		µg/l	2.92	50.0		102	30-130	2	20
Pentachlorophenol	**33.3**		µg/l	1.87	50.0		67	30-130	2	20
Phenol	**34.2**		µg/l	0.983	50.0		68	30-130	4	20
2,4,5-Trichlorophenol	**44.2**		µg/l	1.19	50.0		88	30-130	5	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1705073 - SW846 3510C										
LCS Dup (1705073-BSD1)						Prepared: 24-Mar-17 Analyzed: 25-Mar-17				
2,4,6-Trichlorophenol	**40.4**		µg/l	1.08	50.0		81	30-130	4	20
Surrogate: 2-Fluorophenol	*40.8*		µg/l		*50.0*		*82*	*15-110*		
Surrogate: Phenol-d5	*46.0*		µg/l		*50.0*		*92*	*15-110*		
SW846 8270D SIM										
Batch 1705073 - SW846 3510C										
Blank (1705073-BLK2)						Prepared: 24-Mar-17 Analyzed: 25-Mar-17				
Acenaphthene	< 0.050		µg/l	0.050						
Acenaphthylene	< 0.050		µg/l	0.050						
Anthracene	< 0.050		µg/l	0.050						
Benzo (a) anthracene	< 0.050		µg/l	0.050						
Benzo (a) pyrene	< 0.050		µg/l	0.050						
Benzo (b) fluoranthene	< 0.050		µg/l	0.050						
Benzo (g,h,i) perylene	< 0.050		µg/l	0.050						
Benzo (k) fluoranthene	< 0.050		µg/l	0.050						
Chrysene	< 0.050		µg/l	0.050						
Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050						
Fluoranthene	< 0.050		µg/l	0.050						
Fluorene	< 0.050		µg/l	0.050						
Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050						
Naphthalene	< 0.050		µg/l	0.050						
Phenanthrene	< 0.050		µg/l	0.050						
Pyrene	< 0.050		µg/l	0.050						
Surrogate: Benzo (e) pyrene-d12	*1.28*		µg/l		*1.00*		*128*	*30-130*		
LCS (1705073-BS2)						Prepared: 24-Mar-17 Analyzed: 25-Mar-17				
Acenaphthene	**0.785**		µg/l	0.050	1.00		78	40-140		
Acenaphthylene	**0.794**		µg/l	0.050	1.00		79	40-140		
Anthracene	**0.665**		µg/l	0.050	1.00		66	40-140		
Benzo (a) anthracene	**0.740**		µg/l	0.050	1.00		74	40-140		
Benzo (a) pyrene	**0.822**		µg/l	0.050	1.00		82	40-140		
Benzo (b) fluoranthene	**0.825**		µg/l	0.050	1.00		82	40-140		
Benzo (g,h,i) perylene	**0.763**		µg/l	0.050	1.00		76	40-140		
Benzo (k) fluoranthene	**0.778**		µg/l	0.050	1.00		78	40-140		
Chrysene	**0.736**		µg/l	0.050	1.00		74	40-140		
Dibenzo (a,h) anthracene	**0.879**		µg/l	0.050	1.00		88	40-140		
Fluoranthene	**0.655**		µg/l	0.050	1.00		66	40-140		
Fluorene	**0.813**		µg/l	0.050	1.00		81	40-140		
Indeno (1,2,3-cd) pyrene	**0.818**		µg/l	0.050	1.00		82	40-140		
Naphthalene	**0.870**		µg/l	0.050	1.00		87	40-140		
Phenanthrene	**0.619**		µg/l	0.050	1.00		62	40-140		
Pyrene	**0.703**		µg/l	0.050	1.00		70	40-140		
Surrogate: Benzo (e) pyrene-d12	*1.14*		µg/l		*1.00*		*114*	*30-130*		
LCS Dup (1705073-BSD2)						Prepared: 24-Mar-17 Analyzed: 25-Mar-17				
Acenaphthene	**0.946**		µg/l	0.050	1.00		95	40-140	19	20
Acenaphthylene	**0.969**		µg/l	0.050	1.00		97	40-140	20	20
Anthracene	**0.765**		µg/l	0.050	1.00		76	40-140	14	20
Benzo (a) anthracene	**0.874**		µg/l	0.050	1.00		87	40-140	17	20
Benzo (a) pyrene	**0.962**		µg/l	0.050	1.00		96	40-140	16	20
Benzo (b) fluoranthene	**0.995**		µg/l	0.050	1.00		100	40-140	19	20
Benzo (g,h,i) perylene	**0.921**		µg/l	0.050	1.00		92	40-140	19	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D SIM										
Batch 1705073 - SW846 3510C										
LCS Dup (1705073-BSD2)					Prepared: 24-Mar-17 Analyzed: 25-Mar-17					
Benzo (k) fluoranthene	**0.939**		µg/l	0.050	1.00		94	40-140	19	20
Chrysene	**0.863**		µg/l	0.050	1.00		86	40-140	16	20
Dibenzo (a,h) anthracene	**1.04**		µg/l	0.050	1.00		104	40-140	17	20
Fluoranthene	**0.787**		µg/l	0.050	1.00		79	40-140	18	20
Fluorene	**0.993**		µg/l	0.050	1.00		99	40-140	20	20
Indeno (1,2,3-cd) pyrene	**1.05**	QR2	µg/l	0.050	1.00		105	40-140	25	20
Naphthalene	**1.07**	QR2	µg/l	0.050	1.00		107	40-140	21	20
Phenanthrene	**0.756**		µg/l	0.050	1.00		76	40-140	20	20
Pyrene	**0.846**		µg/l	0.050	1.00		85	40-140	18	20
Surrogate: Benzo (e) pyrene-d12	*1.31*	QM9	µg/l		*1.00*		*131*	*30-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 200.7										
Batch 1705143 - EPA 200 Series										
Blank (1705143-BLK1)					Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Nickel	< 0.0010	U	mg/l	0.0010						
Lead	< 0.0034	U	mg/l	0.0034						
Zinc	< 0.0027	U	mg/l	0.0027						
Copper	< 0.0029	U	mg/l	0.0029						
Cadmium	< 0.0004	U	mg/l	0.0004						
LCS (1705143-BS1)					Prepared: 27-Mar-17 Analyzed: 31-Mar-17					
Copper	**1.34**		mg/l	0.0029	1.25		108	85-115		
Zinc	**1.32**		mg/l	0.0027	1.25		105	85-115		
Lead	**1.33**		mg/l	0.0034	1.25		106	85-115		
Nickel	**1.28**		mg/l	0.0010	1.25		103	85-115		
Cadmium	**1.38**		mg/l	0.0004	1.25		111	85-115		
Duplicate (1705143-DUP1)			**Source: SC32731-01**		Prepared: 27-Mar-17 Analyzed: 31-Mar-17					
Cadmium	< 0.0020	R01, U, D	mg/l	0.0020		BRL				20
Zinc	< 0.0136	R01, U, D	mg/l	0.0136		BRL				20
Nickel	< 0.0050	R01, U, D	mg/l	0.0050		BRL				20
Lead	< 0.0171	R01, U, D	mg/l	0.0171		BRL				20
Matrix Spike (1705143-MS1)			**Source: SC32731-01**		Prepared: 27-Mar-17 Analyzed: 31-Mar-17					
Lead	**1.22**	D	mg/l	0.0171	1.25	BRL	97.4	70-130		
Zinc	**1.27**	D	mg/l	0.0136	1.25	BRL	102	70-130		
Cadmium	**1.25**	D	mg/l	0.0020	1.25	BRL	100	70-130		
Nickel	**1.20**	D	mg/l	0.0050	1.25	BRL	96	70-130		
EPA 200.8										
Batch 1705144 - EPA 200 Series										
Blank (1705144-BLK1)					Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Copper	< 0.00009	U	mg/l	0.00009						
Chromium	< 0.00031	U	mg/l	0.00031						
LCS (1705144-BS1)					Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Chromium	**0.103**	D	mg/l	0.00306	0.100		103	85-115		
Copper	**0.0961**	D	mg/l	0.00089	0.100		96	85-115		
Duplicate (1705144-DUP1)			**Source: SC32731-01**		Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Copper	**0.117**	R01, R06, D	mg/l	0.00089		0.0972			18	20
Matrix Spike (1705144-MS1)			**Source: SC32731-01**		Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Copper	**0.218**	D	mg/l	0.00089	0.100	0.0972	121	70-130		
Post Spike (1705144-PS1)			**Source: SC32731-01**		Prepared: 27-Mar-17 Analyzed: 28-Mar-17					
Copper	**0.217**	QM5, D	mg/l	0.00089	0.100	0.0972	119	85-115		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
ASTM D 1293-99B										
Batch 1705079 - General Preparation										
Reference (1705079-SRM1)					Prepared & Analyzed: 23-Mar-17					
pH	**6.09**		pH Units		6.00		102	97.5-102.5		
Reference (1705079-SRM2)					Prepared & Analyzed: 23-Mar-17					
pH	**5.99**		pH Units		6.00		100	97.5-102.5		
SM 2520 (01)										
Batch 1705216 - General Preparation										
Reference (1705216-SRM1)					Prepared & Analyzed: 28-Mar-17					
Salinity	**10.2**		ppt (1000)	1.00	10.0		102	90-110		
Reference (1705216-SRM2)					Prepared & Analyzed: 28-Mar-17					
Salinity	**10.2**		ppt (1000)	1.00	10.0		102	90-110		
SM2540 B (11)										
Batch 1705113 - General Preparation										
Blank (1705113-BLK1)					Prepared: 25-Mar-17 Analyzed: 28-Mar-17					
Total Solids	< 5.00		mg/l	5.00						
LCS (1705113-BS1)					Prepared: 25-Mar-17 Analyzed: 28-Mar-17					
Total Solids	**1080**		mg/l	10.0	1100		98	90-110		
Duplicate (1705113-DUP1)			**Source: SC32732-01**		Prepared: 25-Mar-17 Analyzed: 28-Mar-17					
Total Solids	**1930**		mg/l	5.00		1940			0.3	5
SM2540D (11)										
Batch 1705207 - General Preparation										
Blank (1705207-BLK1)					Prepared: 28-Mar-17 Analyzed: 30-Mar-17					
Total Suspended Solids	< 0.5		mg/l	0.5						
LCS (1705207-BS1)					Prepared: 28-Mar-17 Analyzed: 30-Mar-17					
Total Suspended Solids	**102**		mg/l	10.0	100		102	90-110		
SM4500-Cl-G (11)										
Batch 1705084 - General Preparation										
Blank (1705084-BLK1)					Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	< 0.020		mg/l	0.020						
LCS (1705084-BS1)					Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	**0.048**		mg/l	0.020	0.0500		96	90-110		
Duplicate (1705084-DUP1)			**Source: SC32731-01**		Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	**0.034**		mg/l	0.020		0.034			0.6	20
Matrix Spike (1705084-MS1)			**Source: SC32731-01**		Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	**0.056**	QM9	mg/l	0.020	0.0500	0.034	44	80-120		
Matrix Spike Dup (1705084-MSD1)			**Source: SC32731-01**		Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	**0.057**	QM9	mg/l	0.020	0.0500	0.034	45	80-120	0.9	200
Reference (1705084-SRM1)					Prepared & Analyzed: 24-Mar-17					
Total Residual Chlorine	**0.111**		mg/l	0.020	0.112		99	85-115		
SM4500-NH3 C. (11)										
Batch 1705173 - General Preparation										
Blank (1705173-BLK1)					Prepared & Analyzed: 27-Mar-17					
Ammonia as N	< 0.200		mg/l	0.200						
LCS (1705173-BS1)					Prepared & Analyzed: 27-Mar-17					
Ammonia as N	**4.90**		mg/l	0.200	5.00		98	90-110		
Matrix Spike (1705173-MS1)			**Source: SC32732-01**		Prepared & Analyzed: 27-Mar-17					
Ammonia as N	**4.55**		mg/l	0.200	5.00	0.420	83	80-120		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SM4500-NH3 C. (11)										
Batch 1705173 - General Preparation										
Reference (1705173-SRM1)						Prepared & Analyzed: 27-Mar-17				
Ammonia as N	**1.82**	QM9	mg/l	0.200	2.16		84	86-114		
SM5310B (00, 11)										
Batch 1705454 - General Preparation										
Blank (1705454-BLK1)						Prepared: 30-Mar-17 Analyzed: 31-Mar-17				
Total Organic Carbon	< 1.00		mg/l	1.00						
LCS (1705454-BS1)						Prepared: 30-Mar-17 Analyzed: 31-Mar-17				
Total Organic Carbon	**17.0**		mg/l	1.00	15.0		113	85-115		
Duplicate (1705454-DUP1)			**Source: SC32731-01**			Prepared & Analyzed: 30-Mar-17				
Total Organic Carbon	**2.28**		mg/l	1.00		2.39			5	20
Matrix Spike (1705454-MS1)			**Source: SC32731-01**			Prepared & Analyzed: 30-Mar-17				
Total Organic Carbon	**7.98**		mg/l	1.00	5.00	2.39	112	70-130		
Matrix Spike Dup (1705454-MSD1)			**Source: SC32731-01**			Prepared & Analyzed: 30-Mar-17				
Total Organic Carbon	**8.04**		mg/l	1.00	5.00	2.39	113	70-130	0.8	30
Reference (1705454-SRM1)						Prepared: 30-Mar-17 Analyzed: 31-Mar-17				
Total Organic Carbon	**22.0**		mg/l	1.00	20.0		110	85-115		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
E1664A										
Batch 380670A - 380670										
BLK (BX93085-BLK)			**Source: SC32732-01**			Prepared & Analyzed: 28-Mar-17				
Oil and Grease by EPA 1664A	< 1.4		mg/L	1.4	40			-		
LCS (BX93085-LCS)			**Source: SC32732-01**			Prepared: Analyzed: 28-Mar-17				
Oil and Grease by EPA 1664A	**40.20**		mg/L	1.4	40		101	85-115		20

Notes and Definitions

D	Data reported from a dilution
J	Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM5	The spike recovery was outside acceptance limits for the MS, MSD and/or PS due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
R01	The Reporting Limit has been raised to account for matrix interference.
R06	MRL raised to correlate to batch QC reporting limits.
U	Analyte included in the analysis, but not detected at or above the MDL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
ClHT	The method for residual chlorine indicates that samples should be analyzed immediately. 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous residual chlorine samples not analyzed in the field are considered out of hold time at the time of sample receipt.
OG	The required Matrix Spike and Matrix Spike Duplicate (MS/MSD) for Oil & Grease method 1664B can only be analyzed when the client has submitted sufficient sample volume. An extra liter per MS/MSD is required to fulfill the method QC criteria. Please refer to Chain of Custody and QC Summary (MS/MSD) of the Laboratory Report to verify ample sample volume was submitted to fulfill the requirement.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.
LIV	The initial volume for this sample has been reduced due to sample matrix and/or historical data therefore elevating the reporting limit.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

New England Bioassay

A Division of GZA

GEOTECHNICAL
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ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

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ACUTE AQUATIC TOXICITY TEST REPORT

Chelsea Sandwich, LLC
Chelsea Sandwich Terminal
Chelsea, MA

Test Start Date: 3/24/17

Test Period: March 2017

Report Prepared by:

New England Bioassay
A Division of GZA GeoEnvironmental, Inc.
77 Batson Dr.
Manchester, CT 06042

NEB Project Number: 05.0045458.00

Report Date: April 10, 2017

Report Submitted to:

Eurofins Spectrum Analytical, Inc.
11 Almgren Drive
Agawam, MA 01001

Sample ID: SC32732-01/SC32731-01

If you have any questions concerning these results, please contact the Lab Manager, Kim Wills, at (860) 858-3153 or kimberly.wills@gza.com.

Whole Effluent Toxicity Testing Report Instruction Form

Client Name/Project: Eurofins / Chelsea Sandwich Terminal Test Date: 3/24/17

Sample ID: SC32732-01/SC32731-01

Your results were as follows:

☒ Monitoring Only

□ Fail – Please proceed according to the instructions in your permit.

□ Invalid – **Retesting is still required. Retest report will be sent at a later date under separate cover.**

□ Original Test Invalid – **Valid retest performed. Both test and retest results are attached.**

□ Retesting will be or has been performed according to the Case 1 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water.

□ This is your _____ case of dilution water toxicity. Please proceed according to the Case 2 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water. The alternate dilution water you select for future tests for this species should be described as follows: "synthetic laboratory water made up according to EPA's toxicity test protocols, by adding specified amounts of salts into deionized water in order to match the hardness of our receiving water." Writing this letter should help you to avoid retests in the future.

□ Available information is insufficient to determine whether this test passed or failed. Please compare results to your permit limits. Please submit a current copy of your permit to the NEB Lab so that we can determine the status of future tests results and help ensure your compliance with permit requirements.

Please complete the items on this list before reporting these results according to the instructions in the "Monitoring and Reporting" Section of your permit.

- Please complete, sign and date the upper portion of the "Whole Effluent Toxicity Test Report Certification" page which is the page directly following this page.
- Fill in the Sample Type and Sample Method (upper right) and the Permit Limits (lower left) on the New England Bioassay - EPA Toxicity Test Summary Sheet(s) if they are incomplete.
- Fill in any missing information on the NEB Chain-of-Custody documents. This includes ensuring that the following information is recorded: Sampler's name and title, Facility name and address, Sample collection methods, Sample collection start and end dates and times, Types of sample, Chlorination status of samples upon shipment to NEB, Site description and Sample collection procedures.
- Monitoring results should be summarized on your monthly Discharge Monitoring Report Form.
- Signed and dated originals of this report must be submitted to the State (and Federal) Agencies specified in the "Monitoring and Reporting" section of your permit.

Questions? Please contact the Lab Manager, Kim Wills, at (860) 858-3153 or kimberly.wills@gza.com.

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Permittee)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on _____ _____
[Date] [Authorized Signature]

_____
[Print or Type Name and Title]

_____
[Print or Type the Permittee's Name]

_____
[Print or Type the NPDES Permit No.]

Since the WET test and report check is complicated, the New England Bioassay Aquatic Toxicity Laboratory has certified the validity of the WET test data in the section below. Please note that this does not relieve the permittee from its responsibility to sign and certify the report under 40 C.F.R. S 122.41(k).

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on 4/10/17 _____
[Date] [Authorized Signature]

Kim Wills, Laboratory Manager
[Print or Type Name and Title]

New England Bioassay
[Print or Type Name of Bioassay Laboratory]

24. Telephone Contacts
If you have questions, please contact Joy Hilton, Water Technical Unit, at (617) 918-1877 or David McDonald, Ecosystem Assessment Unit, at (617) 918-8609.

NEW ENGLAND BIOASSAY, A DIVISION OF GZA EPA TEST SUMMARY SHEET

Facility Name: Chelsea Sandwich Terminal Test Start Date: 3/24/17
NPDES Permit Number: MA0003280 Outfall Number: 001

Test Type	Test Species	Sample Type	Sample Method
XAcute	_ Fathead Minnow	_ Prechlorinated	XGrab
_ Chronic	_ Ceriodaphnia Dubia	_ Dechlorinated	_ Composite
_ Modified	_ Daphnia Pulex	_ Unchlorinated	_ Flow-thru
(Chronic reporting	XMysid Shrimp	_ Chlorinated	_ Other
LC50 values)	_ Sheepshead		
_ 24-Hour Screening	_ Menidia		
	_ Sea Urchin	TRC conc. 0.007 mg/L	
	_ Selenastrum		
	_Other		

Dilution Water

X Receiving water collected at a point immediately upstream of or away from the discharge;
(Receiving water name and sampling location: Chelsea River)

_ Alternate Surface Water of known quality and a hardness to generally reflect the characteristics of the receiving water; (Surface water name:)

_ Synthetic water prepared using either Millipore Mill-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water;

_ Artificial sea salts mixed with deionized water;

_ Other

Effluent Sampling Date(s): 3/23/17

Effluent Concentrations Tested (in%): 0 6.25 12.5 25 50 100
* (Permit Limit Concentration): monitoring only

Was effluent salinity adjusted? Yes If yes, to what value? 25 ppt

Reference Toxicant test date: 3/1/17 Reference Toxicant Test Acceptable: Yes X No _

Age and Age Range of Test Organisms 4 days (< 24 hours) Source of Organisms NEB

TEST RESULTS &PERMIT LIMITS

Test Acceptability Criteria

A. Synthetic Water Control
Mean Control Survival: 100% Mean Control Reproduction: N/A
Mean Control Weight: N/A Mean Control % Fertilization: N/A

B. Receiving Water Control
Mean Control Survival: 100% Mean Control Reproduction: N/A
Mean Control Weight: N/A Mean Control % Fertilization: N/A

C. Lab Culture Control Yes_ No X

D. Thiosulfate Control Yes_ No X

Test Variability

Test PMSD (growth) N/A
Test PMSD (reproduction.) N/A

Permit Limits & Test Results

	Limits		Results
LC50	N/A	LC50	>100%
		Upper Value	±∞
		Lower Value	100%
		Data Analysis Method Used	Graphical
A-NOEC	N/A	A-NOEC	100%
C-NOEC	N/A	C-NOEC	N/A
		LOEC	N/A
IC25	N/A	IC25	-------
IC50	N/A	IC50	-------

PMSD Comparison Discussion – N/A

Concentration-Response Evaluation

The concentration-response relationship observed in this data set corresponds to the following item number in Chapter Four of "Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)", EPA 821-B-00-004, July 2000:

X 1. Ideal concentration-response relationship
_ 2. All or nothing response
_ 3. Stimulatory response at low concentrations and detrimental effects at higher concentrations
_ 4. Stimulation at low concentrations but no significant effect at higher concentrations
_ 5. Interrupted concentration-response: significant effects bracketed by non-significant effects
_ 6. Interrupted concentration-response: non-significant effects bracketed by significant effects
_ 7. Significant effects only at highest concentration
_ 8. Significant effects at all test concentrations but flat concentration-response curve
_ 9. Significant effects at all test concentrations with a sloped concentration-response curve
_ 10. Inverse concentration-response relationship

The concentration-response relationship was reviewed according to the above guidance document and the following determination was made:

X 1. Results are reliable and should be reported.
_ 2. Results are anomalous. An explanation is provided in the body of the report.
_ 3. Results are inconclusive and the test should be repeated with a newly collected sample. An explanation is provided in the body of the report.

NEW ENGLAND BIOASSAY, A DIVISION OF GZA EPA TEST SUMMARY SHEET

Facility Name: Chelsea Sandwich Terminal Test Start Date: 3/24/17
NPDES Permit Number: MA0003280 Outfall Number: 001

Test Type	Test Species	Sample Type	Sample Method
XAcute	_ Fathead Minnow	_ Prechlorinated	XGrab
_ Chronic	_ Ceriodaphnia Dubia	_ Dechlorinated	_ Composite
_ Modified	_ Daphnia Pulex	_ Unchlorinated	_ Flow-thru
(Chronic reporting	_ Mysid Shrimp	_ Chlorinated	_ Other
LC50 values)	_ Sheepshead		
_ 24-Hour Screening	XMenidia		
	_ Sea Urchin	TRC conc. 0.007 mg/L	
	_ Selenastrum		
	_Other		

Dilution Water

X Receiving water collected at a point immediately upstream of or away from the discharge;
(Receiving water name and sampling location: Chelsea River)
_ Alternate Surface Water of known quality and a hardness to generally reflect the characteristics of the receiving water; (Surface water name:)
_ Synthetic water prepared using either Millipore Mill-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water;
_ Artificial sea salts mixed with deionized water;
_ Other

Effluent Sampling Date(s): 3/23/17

Effluent Concentrations Tested (in%): 0 6.25 12.5 25 50 100
* (Permit Limit Concentration): monitoring only

Was effluent salinity adjusted? Yes If yes, to what value? 25 ppt

Reference Toxicant test date: 3/1/17 Reference Toxicant Test Acceptable: Yes X No _

Age and Age Range of Test Organisms 12 days (<24 hours) Source of Organisms AI

TEST RESULTS &PERMIT LIMITS

Test Acceptability Criteria

A. Synthetic Water Control
Mean Control Survival: 97.5% Mean Control Reproduction: N/A
Mean Control Weight: N/A Mean Control % Fertilization: N/A

B. Receiving Water Control
Mean Control Survival: 100% Mean Control Reproduction: N/A
Mean Control Weight: N/A Mean Control % Fertilization: N/A

C. Lab Culture Control Yes_ No X

D. Thiosulfate Control Yes_ No X

Test Variability

Test PMSD (growth) N/A
Test PMSD (reproduction.) N/A

Permit Limits & Test Results

	Limits		Results
LC50	N/A	LC50	>100%
		Upper Value	±∞
		Lower Value	100%
		Data Analysis Method Used	Graphical
A-NOEC	N/A	A-NOEC	100%
C-NOEC	N/A	C-NOEC	N/A
		LOEC	N/A
IC25	N/A	IC25	-------
IC50	N/A	IC50	-------

PMSD Comparison Discussion – N/A

Concentration-Response Evaluation

The concentration-response relationship observed in this data set corresponds to the following item number in Chapter Four of "Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)", EPA 821-B-00-004, July 2000:

X 1. Ideal concentration-response relationship
_ 2. All or nothing response
_ 3. Stimulatory response at low concentrations and detrimental effects at higher concentrations
_ 4. Stimulation at low concentrations but no significant effect at higher concentrations
_ 5. Interrupted concentration-response: significant effects bracketed by non-significant effects
_ 6. Interrupted concentration-response: non-significant effects bracketed by significant effects
_ 7. Significant effects only at highest concentration
_ 8. Significant effects at all test concentrations but flat concentration-response curve
_ 9. Significant effects at all test concentrations with a sloped concentration-response curve
_ 10. Inverse concentration-response relationship

The concentration-response relationship was reviewed according to the above guidance document and the following determination was made:

X 1. Results are reliable and should be reported.
_ 2. Results are anomalous. An explanation is provided in the body of the report.
_ 3. Results are inconclusive and the test should be repeated with a newly collected sample. An explanation is provided in the body of the report.

MYSIDOPSIS BAHIA AQUATIC TOXICITY TEST REPORT

Test Reference Manual:	EPA 821-R-02-012, "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater Organisms and Marine Organisms", Fifth Edition
Test Method:	*Mysidopsis bahia* Acute Toxicity Test – Method 2007.0
Test Type:	Acute Static Non-Renewal Saltwater Test
Salinity:	25 ppt ± 10% for all dilutions by dry ocean salts (Instant Ocean)
Temperature :	25 ± 1°C
Light Quality:	Ambient Laboratory Illumination
Photoperiod:	16 hours light, 8 hours dark
Test Chamber Size:	250 mL
Test Solution Volume:	Minimum 200 mL
Age of Test Organisms:	4 days
Number of Mysids Per Test Chamber:	10
Number of Replicate Test Chambers Per Treatment:	4
Total Number of Mysids Per Test Concentration:	40
Feeding Regime:	Light feeding using concentrated *Artemia* nauplii while holding prior to initiating the test.
Aeration:	Aerated at <100 bubbles/minute
Dilution Water:	Chelsea River
Alternate Control Water:	NEB Artificial Salt Water (salinity 25 ppt)
Effluent Concentrations:	0%, 6.25%, 12.5%, 25%, 50% and 100% effluent
Test Duration:	48 hours
Effect measured:	Mortality – no movement of body appendages on gentle prodding.
Test Acceptability:	≥ 90% survival of test organisms in control solution Yes X No _
Sampling Requirements:	Samples first used within 36 hours of collection Yes X No _
Sample Volume Required:	Minimum 2 liters
Test Organism Source:	New England Bioassay

Test Acceptability Criteria: Mean Alternate Water Control Survival = 100%
Mean Dilution Water Control Survival = 100%

Test Results:	Limits	Results
48-hour LC50	N/A	>100%
Upper Value		±∞
Lower Value		100%
Data Analysis Method Used		Graphical
A-NOEC		100%

Reference Toxicant Data:

Date:	3/1/17
Toxicant:	Sodium Dodecyl Sulfate
Dilution Water:	NEB Artificial Salt Water
Toxicant Source:	New England Bioassay
Organism Source:	New England Bioassay
48-hour LC50:	20.3 mg/L
In Acceptable Range:	Yes X No _____

Dechlorination Procedures: Chlorine is measured using 4500 CL-G DPD Colorimetric Method.

X Dechlorination was not required.

_ Sample was dechlorinated by adding sodium thiosulfate to the sample prior to test initiation. Since dechlorination of the effluent was necessary, a thiosulfate control of diluent water spiked with sodium thiosulfate was also included in the test series. Chlorine was _____ mg/L in a dechlorinated sample.

_ Chlorine Measurement was elevated due to interference. Chlorine was _____ mg/L in a filtered sample.

_ Total Residual Chlorine was re-measured following aeration, and was found to be _____ mg/L.

Additional Notes or Other Conditions Affecting the Test:

MENIDIA BERYLLINA AQUATIC TOXICITY TEST REPORT

Test Reference Manual:	EPA 821-R-02-012, "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater Organisms and Marine Organisms", Fifth Edition
Test Method:	*Menidia beryllina* Acute Toxicity Test – Method 2006.0
Test Type:	Acute Static Non-Renewal Saltwater Test
Salinity:	25 ppt ± 2 ppt by adding dry ocean salts (Instant Ocean)
Temperature :	25 ± 1°C
Light Quality:	Ambient Laboratory Illumination
Photoperiod:	16 hours light, 8 hours dark
Test Chamber Size:	250 mL
Test Solution Volume:	Minimum 200 mL/replicate
Age of Test Organisms:	12 days old (24 hour age range)
Number of Fish Per Test Chamber:	10
Number of Replicate Test Chambers Per Treatment:	4
Total Number of Organisms Per Test Concentration:	40
Feeding Regime:	Light feeding using concentrated *Artemia* nauplii while holding prior to initiating the test.
Aeration:	Aerated at <100 bubbles/minute
Dilution Water:	Chelsea River
Alternate Control Water:	NEB Artificial Salt Water (salinity 25 ppt)
Effluent Concentrations:	0%, 6.25%, 12.5%, 25%, 50% and 100% effluent
Test Duration:	48 hours
Effect measured:	Mortality – no movement on gentle prodding.
Test Acceptability:	≥ 90% survival of test organisms in control solution Yes X No _
Sampling Requirements:	Samples first used within 36 hours of collection Yes X No _
Sample Volume Required:	Minimum 2 liters
Test Organism Source:	Aquatic Indicators

Test Acceptability Criteria: Mean Alternate Water Control Survival = 97.5%
Mean Dilution Water Control Survival = 100%

Test Results:	Limits	Results
48-hour LC50	N/A	>100%
Upper Value		±∞
Lower Value		100%
Data Analysis Method Used		Graphical
A-NOEC		100%

Reference Toxicant Data:

Date:	3/1/17
Toxicant:	Sodium Dodecyl Sulfate
Dilution Water:	NEB Artificial Salt Water
Toxicant Source:	New England Bioassay
Organism Source:	Aquatic Indicators
48-hour LC50:	8.49 mg/L
In Acceptable Range:	Yes X No _____

Dechlorination Procedures: Chlorine is measured using 4500 CL-G DPD Colorimetric Method.

X Dechlorination was not required.

_ Sample was dechlorinated by adding sodium thiosulfate to the sample prior to test initiation. Since dechlorination of the effluent was necessary, a thiosulfate control of diluent water spiked with sodium thiosulfate was also included in the test series. Chlorine was _____ mg/L in a dechlorinated sample.

_ Chlorine Measurement was elevated due to interference. Chlorine was _____ mg/L in a filtered sample.

_ Total Residual Chlorine was re-measured following aeration, and was found to be _____ mg/L.

Additional Notes or Other Conditions Affecting the Test:

NEW ENGLAND BIOASSAY ACUTE TOXICITY DATA FORM
COVER SHEET FOR LC50 TESTS

CLIENT:	Eurofins Spectrum Analytical
ADDRESS:	11 Almgren Drive
	Agawam, MA 01001
SAMPLE TYPE:	Chelsea Sandwich Terminal Outfall 001
DILUTION WATER:	Chelsea River

M.bahia TEST ID #	17-408a
M.beryllina TEST ID #	17-408b
COC #	C37-1674/75
PROJECT #	05.0045458.00

Sample Date(s): 3/23/17

Received On: 3/24/17

INVERTEBRATES

TEST SET UP (TECH INIT)	CB
TEST SPECIES	*Mysidopsis bahia*
NEB LOT#	Mb17 (3-20)
AGE	4 days
TEST SOLUTION VOLUME (mls)	200
NO. ORGANISMS PER TEST CHAMBER	10
NO. ORGANISMS PER CONCENTRATION	40
NO. ORGANISMS PER CONTROL	40

	DATE	TIME
TEST START:	3/24/17	1258
TEST END:	3/26/17	1300'

VERTEBRATES

TEST SET UP (TECH INIT)	CB
TEST SPECIES	*Menidia beryllina*
NEB LOT#	Ss17AI (3-21)A
AGE	12 days
TEST SOLUTION VOLUME (mls)	700
NO. ORGANISMS PER TEST CHAMBER	10
NO. ORGANISMS PER CONCENTRATION	40
NO. ORGANISMS PER CONTROL	40

	DATE	TIME
TEST START:	3/24/17	1218
TEST END:	3/26/17	1248

LABORATORY CONTROL WATER:

		Salinity (ppt)	Alkalinity (mg/L $CaCO_3$)
ARTIFICIAL SW: NEB BATCH#	CRIO37-011	25	115

RESULTS OF *Mysidopsis bahia* LC50 TEST

METHOD	LC50 (%)	95% Confidence Limits
BINOMIAL/GRAPHICAL	>100%	100%±∞
PROBIT		
SPEARMAN KARBER		
NOAEL	100%	

RESULTS OF *Menidia beryllina* LC50 TEST

METHOD	LC50 (%)	95% Confidence Limits
BINOMIAL/GRAPHICAL	>100%	100%±∞
PROBIT		
SPEARMAN KARBER		
NOAEL	100%	

NOEC: NO OBSERVABLE EFFECT CONCENTRATION

Comments: 243g instant ocean was added to ~9L effluent to bring salinity to 24ppt
14.5L Creek was brought up to 18L with D.I. water to bring salinity to 25ppt

REVIEWD BY: DATE: 4/10/17

NEW ENGLAND BIOASSAY
Toxicity Test Data Sheet

NEB Test #: 17-408a

Project #: 05.0045458.00

Facility Name: Chelsea Sandwich Terminal

Date Sampled: 3/23/17

Date Received 3/24/17

Sample ID: Outfall 001

Test Organism *Mysidopsis bahia*

Organism Age: 4 days

Test Duration: 48 (hours)

Beginning Date: 3/24/17 Time: 1258

Dilution Water Source: Chelsea River

Salinity: 25 ppt

Effluent Conc. %	Number of Surviving Organisms			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (su)			Salinity (ppt)		
Initials	0	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD
	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control A	10	10	10	7.2	5.9	5.6	24.0	25.5	24.9	8.0	7.9	7.9	25	25	25
Control B	10	10	10		5.5	5.0		25.9	25.2		7.9	7.9		25	25
Control C	10	10	10		5.6	5.1		25.9	25.1		7.9	7.9		25	25
Control D	10	10	10		5.5	5.0		25.9	25.3		7.9	7.9		25	25
Diluent A	10	10	10	7.5	5.8	4.9	24.6	25.7	25.1	7.9	7.8	7.7	25	25	25
Diluent B	10	10	10		5.8	4.5		25.7	25.2		7.8	7.6		25	25
Diluent C	10	10	10		5.6	4.3		26.0	25.3		7.7	7.6		25	25
Diluent D	10	10	10		5.4	4.4		26.0	25.3		7.7	7.6		25	25
6.25 A	10	10	10	7.4	5.6	4.8	24.6	26.0	25.2	7.8	7.8	7.7	25	25	25
6.25 B	10	10	10		5.4	4.6		25.9	25.3		7.7	7.7		25	25
6.25 C	10	10	10		5.4	4.3		25.8	25.3		7.7	7.6		25	25
6.25 D	10	10	10		5.3	4.2		25.9	25.3		7.7	7.6		25	25
12.5 A	10	10	10	7.3	5.1	4.5	24.7	25.9	25.2	7.8	7.7	7.7	25	25	25
12.5 B	10	10	10		5.2	5.1		25.9	25.1		7.8	7.8		25	25
12.5 C	10	10	10		5.7	4.9		25.6	25.2		7.8	7.7		25	25
12.5 D	10	10	10		5.6	4.8		25.7	25.3		7.8	7.7		25	25
25 A	10	10	10	7.3	5.8	5.4	24.7	25.4	25.0	7.8	7.8	7.8	25	25	25
25 B	10	10	10		5.6	4.9		25.7	25.2		7.8	7.8		25	25
25 C	10	10	10		5.5	4.7		25.7	25.3		7.8	7.8		25	25
25 D	10	10	10		5.3	4.6		25.7	25.3		7.8	7.8		25	25

LC50	Confidence Interval	A-NOEC	Computational Method
>100%	100%±∞	100%	Graphical

NEW ENGLAND BIOASSAY
Toxicity Test Data Sheet

NEB Test #: 17-408a
Project #: 05.0045458.00
Facility Name: Chelsea Sandwich Terminal
Date Sampled: 3/23/17
Date Received 3/24/17
Sample ID: Outfall 001

Test Organism *Mysidopsis bahia*
Organism Age 4 days
Test Duration: 48 (hours)
Beginning Date: 3/24/17 Time: 1258
Dilution Water Source Chelsea River
Salinity: 25 ppt

Effluent Conc. %	Number of Surviving Organisms			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (su)			Salinity (ppt)		
Initials	0	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD
	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
50 A	10	10	10	7.1	5.4	4.9	24.7	25.6	25.2	7.8	7.9	7.9	24	25	25
50 B	10	10	10		5.4	4.8		25.8	25.2		7.9	7.9		24	24
50 C	10	10	10		5.6	4.7		25.8	25.2		7.9	7.9		24	24
50 D	10	10	10		5.5	4.8		25.9	25.2		7.9	7.9		24	24
100 A	10	10	10	6.9	5.3	5.3	24.6	25.7	25.1	7.7	7.8	8.1	24	24	24
100 B	10	10	10		5.3	4.9		25.7	25.3		7.8	8.0		24	24
100 C	10	10	10		5.2	4.9		25.6	25.3		7.8	8.0		24	24
100 D	10	10	10		5.4	5.1		25.5	25.1		7.8	8.1		24	24

LC50	Confidence Interval	A-NOEC	Computational Method
>100%	100%±∞	100%	Graphical

CT-TOX: BINOMIAL, MOVING AVERAGE, PROBIT, AND SPEARMAN METHODS

MINIMUM REQUIRED TRIM IS TOO LARGE: 100.0,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	40.	0.	.00	.9095D-10
12.50	40.	0.	.00	.9095D-10
25.00	40.	0.	.00	.9095D-10
50.00	40.	0.	.00	.9095D-10
100.00	40.	0.	.00	.9095D-10

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 100.0000 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

DATE: 3/24/17 TEST NUMBER: 17-408a DURATION: 48 h
SAMPLE: Chelsea Sandwich SPECIES: Mysidopsis bahia

METHOD	LC50	CONFIDENCE LIMITS		
		LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

**** = LIMIT DOES NOT EXIST

NEW ENGLAND BIOASSAY
Toxicity Test Data Sheet

NEB Test #: 17-408b
Project #: 05.0045458.00
Facility Name: Chelsea Sandwich Terminal
Date Sampled: 3/23/17
Date Received 3/24/17
Sample ID: Outfall 001

Test Organism *Menidia beryllina*
Organism Age: 12 days
Test Duration: 48 (hours)
Beginning Date 3/24/17 Time: 1218
Dilution Water Source: Chelsea River
Salinity: 25 ppt

Effluent Conc. %	Number of Surviving Organisms			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (su)			Salinity (ppt)		
Initials	0	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD
	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control A	10	10	10	7.2	6.5	6.5	24.0	25.5	25.2	8.0	8.1	8.1	25	25	25
Control B	10	10	10		5.9	6.0		26.0	25.8		8.1	8.1		25	25
Control C	10	10	10		5.9	5.9		26.0	25.9		8.1	8.1		25	25
Control D	10	9	9		6.0	5.9		25.8	26.0		8.1	8.1		25	25
Diluent A	10	10	10	7.5	6.0	6.2	24.6	25.8	25.2	7.9	7.9	7.9	25	25	25
Diluent B	10	10	10		6.0	6.1		25.8	25.6		7.9	7.9		25	25
Diluent C	10	10	10		6.0	6.1		25.9	25.7		7.9	7.9		25	25
Diluent D	10	10	10		6.2	6.1		25.4	25.7		7.9	7.9		25	25
6.25 A	10	10	10	7.4	6.2	6.1	24.6	25.3	25.4	7.8	7.9	7.9	25	25	25
6.25 B	10	10	10		5.9	5.9		25.6	25.7		7.9	7.9		25	25
6.25 C	10	10	10		5.8	5.8		25.7	25.8		7.9	7.9		25	25
6.25 D	10	10	10		6.1	6.1		25.3	25.8		8.0	8.0		25	25
12.5 A	10	10	10	7.3	6.1	6.3	24.7	25.2	25.2	7.8	8.0	7.9	25	25	25
12.5 B	10	10	10		5.9	5.6		25.6	25.8		7.9	7.9		25	25
12.5 C	10	10	10		5.7	5.7		25.8	25.9		7.9	7.9		25	25
12.5 D	10	10	10		5.7	5.7		25.8	25.9		7.9	7.9		25	25
25 A	10	10	10	7.3	6.2	5.9	24.7	25.2	25.5	7.8	8.0	8.0	25	25	25
25 B	10	10	10		6.1	6.1		25.4	25.7		8.0	8.0		25	25
25 C	10	10	10		5.9	5.9		25.6	25.8		8.0	8.0		25	25
25 D	10	10	9		5.9	5.9		25.4	25.7		8.0	8.0		25	25

LC50	Confidence Interval	A-NOEC	Computational Method
>100%	100%±∞	100%	Graphical

NEW ENGLAND BIOASSAY
Toxicity Test Data Sheet

NEB Test #: 17-408b

Project #: 05.0045458.00

Facility Name: Chelsea Sandwich Terminal

Date Sampled: 3/23/17

Date Received 3/24/17

Sample ID: Outfall 001

Test Organism *Menidia beryllina*

Organism Age 12 days

Test Duration: 48 (hours)

Beginning Date 3/24/17 Time: 1218

Dilution Water Source Chelsea River

Salinity: 25 ppt

Effluent Conc. %	Number of Surviving Organisms			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (su)			Salinity (ppt)		
Initials	0	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD	CB	PD	PD
	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
50 A	10	10	10	7.1	6.0	6.4	24.7	25.3	25.5	7.8	8.0	8.1	24	25	25
50 B	10	10	10		6.0	5.9		25.4	25.7		8.0	8.1		25	25
50 C	10	10	10		5.9	6.0		25.6	25.6		8.0	8.1		25	25
50 D	10	10	10		6.0	6.1		25.5	25.6		8.0	8.1		25	25
100 A	10	10	10	6.9	6.1	5.8	24.6	25.6	25.9	7.7	8.0	8.1	24	24	25
100 B	10	10	10		5.8	6.0		25.6	25.6		8.0	8.2		24	25
100 C	10	10	10		5.6	5.9		25.8	25.5		8.0	8.1		24	25
100 D	10	10	10		5.5	6.1		25.6	25.2		8.0	8.1		24	25

LC50	Confidence Interval	A-NOEC	Computational Method
>100%	100%±∞	100%	Graphical

CT-TOX: BINOMIAL, MOVING AVERAGE, PROBIT, AND SPEARMAN METHODS

MINIMUM REQUIRED TRIM IS TOO LARGE: 99.2,SO SK IS NOT CALCULABLE.
SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	40.	0.	.00	.9095D-10
12.50	40.	0.	.00	.9095D-10
25.00	40.	1.	2.50	.3729D-08
50.00	40.	0.	.00	.9095D-10
100.00	40.	0.	.00	.9095D-10

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 100.0000 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

DATE: 3/24/17 TEST NUMBER: 17-408b DURATION: 48 h
SAMPLE: Chelsea Sandwich SPECIES: Menidia beryllina

METHOD	LC50	CONFIDENCE LIMITS		
		LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

**** = LIMIT DOES NOT EXIST

INITIAL CHEMISTRY INFORMATION

CLIENT: Chelsea Sandwich Terminal

PROJECT # 05.0045458.00

RECIEPT DATE	3/24/17	
SAMPLE	Effluent	Receiving Water
COC #	C37-1674	C37-1675
Temperature (°C)	5.0	4.8
Dissolved Oxygen (mg/L)	7.9	11.0
pH (standard units)	6.8	7.8
Conductivity (µmhos/cm)	4,084	47,950
Salinity (ppt)	2	31
Hardness (as mg/L CaCO3)	430	5700
Alkalinity (as mg/L CaCO3)	80	105
TRC - DPD (mg/L)	0.007	<0.001
INITIALS	CW	CW

Additional notes:

eurofins | Spectrum Analytical

SUBCONTRACT ORDER

SC32732

SENDING LABORATORY:

Eurofins Spectrum Analytical, Inc.
11 Almgren Drive
Agawam, MA 01001
Phone: (413) 789-9018
Fax: (413) 789-4076
Project Manager: Dulce Litchfield

RECEIVING LABORATORY:

GZA Geoenvironmental, Inc. - Manchester, CT*
77 Batson Drive
Manchester, CT 06042
Phone: (860) 286-8900
Fax: (860) 242-8389

BILL TO:

Eurofins Spectrum Analytical, Inc.
2425 New Holland Pike
Lancaster, PA 17601
Attention: Accounts Payable
accountspayable@eurofinsus.com
PO Number: SC32732

Project: Gulf Terminal - Chelsea, MA

Project #: Gulf Chelsea

PO Number: SC32732

Laboratory ID	Sample ID	Sampled	Matrix	Analysis	Due	Comments
	SC32732-01	23-Mar-17 10:00	Surface Water	Aquatic Tox	**07-Apr-17 16:00**	Client ID is Outfall 003/LC50

Containers Supplied:
Other (L)

C37-1674

Please send notice within 24 hours of obtaining valid data, of the results of all drinking water samples that exceed any EPA or Department-established maximum contaminant level, maximum residual disinfectant level or reportable concentration. Notice should be emailed to SpectrumLabResults@EurofinsUS.com.

Please notify SpectrumLabResults@EurofinsUS.com immediately and prior to conducting analysis if certification is not held for the analyses requested.

Please e-mail results in electronic format to SpectrumLabResults@EurofinsUS.com.

Received
Unpreserved

Released By	Date	Received By	Date	Temp °C
	3/24/17		3/24/17@0945	
Released By	Date	Received By	Date	

eurofins

Spectrum Analytical

SUBCONTRACT ORDER

SC32731

SENDING LABORATORY:

Eurofins Spectrum Analytical, Inc.
11 Almgren Drive
Agawam, MA 01001
Phone: (413) 789-9018
Fax: (413) 789-4076
Project Manager: Dulce Litchfield

RECEIVING LABORATORY:

GZA Geoenvironmental, Inc. - Manchester, CT*
77 Batson Drive
Manchester, CT 06042
Phone: (860) 286-8900
Fax: (860) 242-8389

BILL TO:

Eurofins Spectrum Analytical, Inc.
2425 New Holland Pike
Lancaster, PA 17601
Attention: Accounts Payable
accountspayable@eurofinsus.com
PO Number: SC32731

Project: Gulf Terminal - Chelsea, MA

Project #: Gulf Chelsea

PO Number: SC32731

Laboratory ID	Sample ID	Sampled	Matrix	Analysis	Due	Comments
	SC32731-01	23-Mar-17 10:00	Surface Water	Aquatic Tox	**07-Apr-17 16:00**	Client ID is Chelsea Creek/LC50

Containers Supplied:
Other (J)

037-1675

Please send notice within 24 hours of obtaining valid data, of the results of all drinking water samples that exceed any EPA or Department-established maximum contaminant level, maximum residual disinfectant level or reportable concentration. Notice should be emailed to SpectrumLabResults@EurofinsUS.com.

Please notify SpectrumLabResults@EurofinsUS.com immediately and prior to conducting analysis if certification is not held for the analyses requested.

Please e-mail results in electronic format to SpectrumLabResults@EurofinsUS.com.

Received
Unpreserved

Released By	Date	Received By	Date	Temp °C
[signature]	3/24/17	[signature]	3/24/17@0945	
Released By	Date	Received By	Date	

NEB SALTWATER SPEC S ACCLIMATION RECORD

Species: Menidia beryllina	Client: Test ID:	Quantity: 560	*Mortality upon arrival <10% (20)
Source: Aquatic Indicators	Lot #: 5S17AI(3-21)A	Age: 9 days on 3-21-17	* Mortality > 10% - Notify management

Allowable Mortality: > 5% mortality = Notify management.

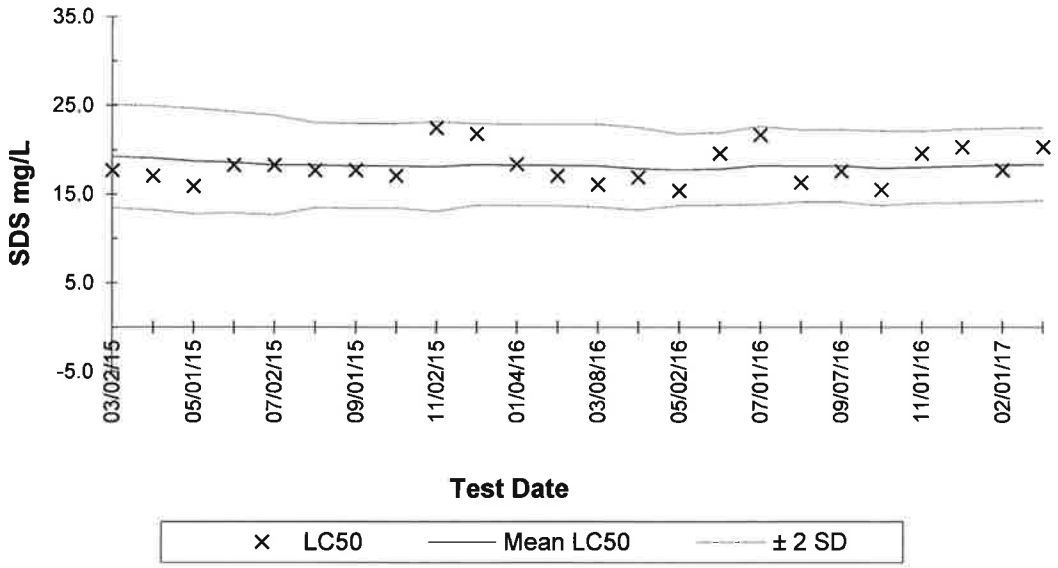
Allowable Acclimation: Fish = No more than 50% tank volume water change over a 12 (twelve) hour period.

Mysids = Need to be +/- 2 ppt of test dilution water.

Water Chemistry						Observations						
Date	D.O. (mg/L)	p.H. (SU)	Temp. (C) *	Alkal. (mg/L) ml titrant	Sal. (ppt) **	Feedings			Behavioral observations	Do organisms look stressed?	Mortalities	Comments / Treatment type
						AM	NOON	PM	A = Normal, B = Erratic mov. C = Dead	Yes / No	# of dead organisms removed from tank	
3-21-17	13.7	7.4	22.5	190 ml	25	AH	MG	MG	A	No		Acclimated to ASW.
3-22-17	6.6	—	23.4	—	26	SJP	SJP	SJP	A	No	0	Water Δ 10L ASW
3-23-17	7.4	—	22.3	—	25	SJP	SJP	SJP	A	No	0	Water Δ 10L ASW
3-24-17	7.2	—	21.8	—	26	SJP	MG	SJP	A	No	0	Water Δ 10L ASW
3-26-17	6.9	—	22.6	—	26	SJP	SJP	SJP	A	No	0	H_2O Δ 10L ASW

New England Bioassay
Reference Toxicant Data: *Mysidopsis bahia* 48-hour LC50

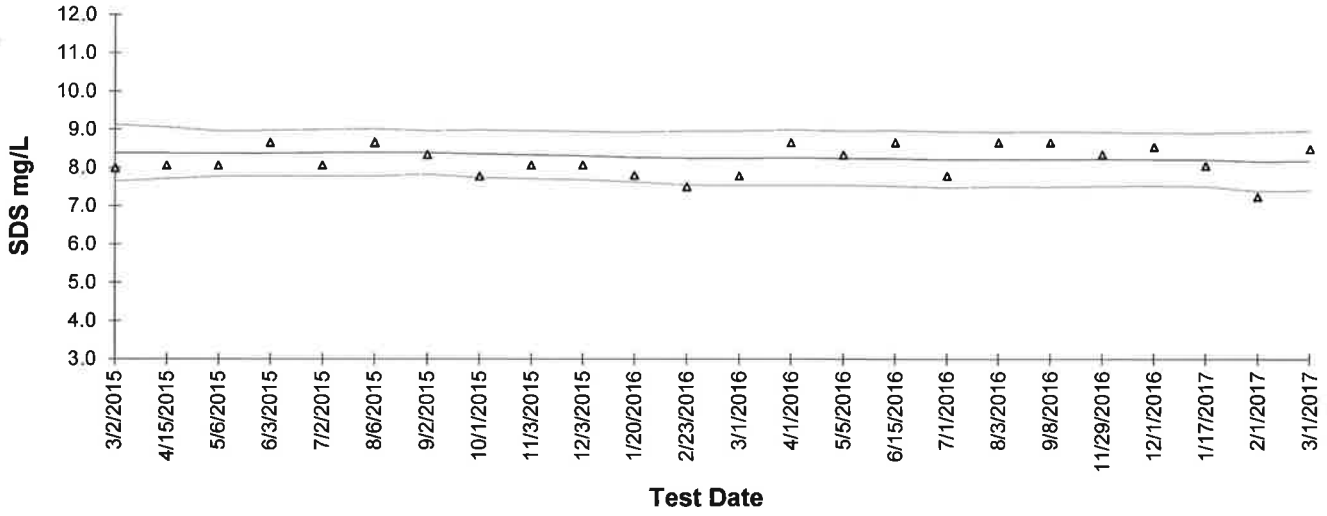
Reference Toxicant: Sodium Dodecyl Sulfate
Test Dates: March 2015 - March 2017



Test ID	Date	LC_{50}	Mean LC_{50}	STD	-2STD	+2STD	CV	CV National 75th & 90th%
15-258	3/2/2015	17.7	19.3	2.9	13.5	25.1	0.15	0.26
15-414	4/1/2015	17.1	19.1	2.9	13.2	24.9	0.15	0.26
15-549	5/1/2015	15.9	18.7	3.0	12.8	24.7	0.16	0.26
15-704	6/1/2015	18.3	18.6	2.9	12.9	24.3	0.15	0.26
15-900	7/2/2015	18.3	18.3	2.8	12.7	23.9	0.15	0.26
15-1082	8/3/2015	17.7	18.3	2.4	13.5	23.1	0.13	0.26
15-1296	9/1/2015	17.7	18.2	2.4	13.4	23.0	0.13	0.26
15-1458	10/1/2015	17.1	18.2	2.4	13.5	23.0	0.13	0.26
15-1687	11/2/2015	22.5	18.1	2.5	13.1	23.2	0.14	0.26
15-1776	12/1/2015	21.8	18.4	2.3	13.8	23.0	0.13	0.26
16-34	1/4/2016	18.4	18.3	2.3	13.7	22.9	0.12	0.26
16-142	2/1/2016	17.1	18.3	2.3	13.7	22.8	0.12	0.26
16-338	3/8/2016	16.1	18.2	2.3	13.6	22.9	0.13	0.26
16-460	4/1/2016	16.9	17.9	2.3	13.2	22.5	0.13	0.26
16-600	5/2/2016	15.4	17.8	2.0	13.7	21.8	0.11	0.26
16-709	6/1/2016	19.6	17.9	2.0	13.8	22.0	0.11	0.26
16-849	7/1/2016	21.7	18.3	2.2	13.8	22.7	0.12	0.26
16-1058	8/1/2016	16.3	18.2	2.0	14.1	22.2	0.11	0.26
16-1256	9/7/2016	17.6	18.2	2.0	14.1	22.3	0.11	0.26
16-1471	10/5/2016	15.5	17.9	2.1	13.7	22.1	0.12	0.26
16-1590	11/1/2016	19.6	18.0	2.0	14.0	22.1	0.11	0.26
17-9	1/3/2017	20.3	18.2	2.1	14.0	22.4	0.11	0.26
17-154	2/1/2017	17.7	18.3	2.1	14.1	22.4	0.11	0.26
17-273	3/1/2017	20.3	18.4	2.1	14.3	22.5	0.11	0.26

New England Bioassay
Reference Toxicant Data: *Menidia beryllina* 48-hour LC50

Reference Toxicant: Sodium Dodecyl Sulfate
Test Dates: March 2015 - March 2017



Test ID	Date	LC_{50}	Mean LC_{50}	STD	-2STD	+2STD	CV	CV National 75th%	CV National 90th%
15-143	3/2/2015	8.0	8.4	0.4	7.6	9.1	0.04	0.21	0.44
15-585	4/15/2015	8.1	8.4	0.3	7.7	9.1	0.04	0.21	0.44
15-623	5/6/2015	8.1	8.4	0.3	7.8	9.0	0.04	0.21	0.44
15-705	6/3/2015	8.7	8.4	0.3	7.8	9.0	0.04	0.21	0.44
15-901	7/2/2015	8.1	8.4	0.3	7.8	9.0	0.04	0.21	0.44
15-1083	8/6/2015	8.7	8.4	0.3	7.8	9.0	0.04	0.21	0.44
15-1297	9/2/2015	8.4	8.4	0.3	7.8	9.0	0.03	0.21	0.44
15-1539	10/1/2015	7.8	8.4	0.3	7.7	9.0	0.04	0.21	0.44
15-1688	11/3/2015	8.1	8.3	0.3	7.7	9.0	0.04	0.21	0.44
15-1825	12/3/2015	8.1	8.3	0.3	7.7	8.9	0.04	0.21	0.44
16-108	1/20/2016	7.8	8.3	0.3	7.6	8.9	0.04	0.21	0.44
16-260	2/23/2016	7.5	8.3	0.4	7.6	9.0	0.04	0.21	0.44
16-303	3/1/2016	7.8	8.3	0.4	7.5	9.0	0.04	0.21	0.44
16-461	4/1/2016	8.7	8.3	0.4	7.5	9.0	0.04	0.21	0.44
16-602	5/5/2016	8.3	8.3	0.4	7.5	9.0	0.04	0.21	0.44
16-798	6/15/2016	8.7	8.2	0.4	7.5	9.0	0.04	0.21	0.44
16-850	7/1/2016	7.8	8.2	0.4	7.5	8.9	0.04	0.21	0.44
16-1060	8/3/2016	8.7	8.2	0.4	7.5	8.9	0.04	0.21	0.44
16-1282	9/8/2016	8.7	8.2	0.4	7.5	8.9	0.04	0.21	0.44
16-1705	11/29/2016	8.4	8.2	0.4	7.5	8.9	0.04	0.21	0.44
16-1739	12/1/2016	8.6	8.2	0.3	7.5	8.9	0.04	0.21	0.44
17-83	1/17/2017	8.1	8.2	0.3	7.5	8.9	0.04	0.21	0.44
17-155	2/1/2017	7.3	8.2	0.4	7.4	8.9	0.05	0.21	0.44
17-278	3/1/2017	8.5	8.2	0.4	7.4	9.0	0.05	0.21	0.44

1 SC32731 Rev

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: Andrew Adams
Gulf Oil LP
281 Eastern Ave
Chelsea, MA 02150
Telephone #: 617.884.5980
Project Mgr: Andrew Adams

Invoice To: Christopher Gill
Gulf Oil LP
80 William St, Suite 400
Wellesley, MA 02481-3705
P.O No.: _____ Quote/RQN: _____

Project No: Gulf Chelsea
Site Name: Gulf Chelsea Terminal
Location: 281 Eastern Ave, Chelsea State: MA
Sampler(s): Andrew Adams

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
7=CH3OH **8**=$NaHSO_4$ **9**=Deionized Water **10**=H_3PO_4 **11**= none **12**= _____

DW=Dinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water
O=Oil **SO**=Soil **SL**=Sludge **A**=Indoor/Ambient Air **SG**=Soil Gas
X1= _____ **X2**= _____ **X3**= _____

G= Grab **C**=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: Ammonia	TRC, salinity, pH, TS, TSS	BTEX & naphthalene	PAHs	TOC	Total Recov. (Cd, Cu, Pb, Ni, Zn)*	LC50	Check if chlorinated
						List Preservative Code below:				3	11	2	11	10	4		
SC32731-01	Chelsea Creek	3-23	10:00	G	SW				1	X							☐
	Chelsea Creek	3-23	1000	G	SW				1		X						☐
	Chelsea Creek	3-23	1000	G	SW	3						X					☐
	Chelsea Creek	3-23	1000	G	SW		1						X				☐
	Chelsea Creek	3-23	1000	G	SW	2								X			☐
	Chelsea Creek	3-23	1000	G	SW				1						X		☐
	Chelsea Creek	3-23	1000	G	SW				1							X	☐
																	☐
																	☐
																	☐
										2.9							☐

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☑ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

*** Report metals down to the MDL**

Required Minimum Levels:
- **BTEX - 2 µg/L**
- **naphthalene - 5 µg/L**
- **Group 1 PAHs - 0.1 µg/L**
- **Group 2 PAHs - 5 µg/L**
- **Cd, Pb, Ni - 0.2 ug/L**
- **Cu - 0.5 µg/L**
- **Zn - 5 µg/L**

Relinquished by:	Received by:	Date:	Time:
Andrew Adams	Steph Reid	3/23/17	11:00
Steph Reid	[illegible]	3/24/17	1500
			2.9

Temp °C: Observed ~~1.0~~ 2.9 2nd
Correction Factor 0
Corrected ~~1.0~~ 2.9 2nd
IR ID # 02

☐ EDD format: _____
☑ E-mail to: aadams@gulfoil.com, cgill@gulfoil.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SC 32732 / SM

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 2

Special Handling:
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: Andrew Adams
Gulf Oil LP
281 Eastern Ave
Chelsea, MA 02150
Telephone #: 617.884.5980
Project Mgr: Andrew Adams

Invoice To: Christopher Gill
Gulf Oil LP
80 William St, Suite 400
Wellesley, MA 02481-3705
P.O No.: _____ Quote/RQN: _____

Project No: Gulf Chelsea
Site Name: Gulf Chelsea Terminal
Location: 281 Eastern Ave, Chelsea State: MA
Sampler(s): Andrew Adams

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= none 12= _____

DW=Dinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= _____ X2= _____ X3= _____

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		Analysis: Ammonia	TRC, salinity, pH, TS, TSS	O&G	BTEX, naphtha-lene, TBA	Vinyl chloride, MTBE + Ethanol	PAHs and total phenol*	Fecal Coliform	TOC	Check if chlorinated
						3	11	3	2	11	11	10	4						
SC 32732 ✓	Outfall 003	3-23	1000	G	SW				1		X								☐
	Outfall 003	3-23	1000	G	SW				1			X							☐
	Outfall 003	3-23	1000	G	SW		1						X						☐
	Outfall 003	3-23	1000	G	SW	3								X	X				☐
	Outfall 003	3-23	1000	G	SW		1									X			☐
	Outfall 003	3-23	1000	G	SW				1								X		☐
	Outfall 003	3-23	1000	G	SW	2												X	☐
																			☐
																			☐
																			☐

List Preservative Code below:

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☑ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

- * Report phenol down to MDL
- Required Minimum Levels:
- BTEX - 2 µg/L; TBA - 10 µg/L;
- naphthalene and vinyl chl - 5 µg/L
- ethanol - 400 µg/L
- Group 1 PAHs - 0.1 µg/L
- Group 2 PAHs - 5 µg/L

Relinquished by:	Received by:	Date:	Time:
Andrew Adams	Stephen Reid	3/23/17	11:00
Stephen Reid		3/23/17	1500

Temp °C
Observed 0.0
Correction Factor 0
Corrected 0.0
IR ID#

☑ EDD format: _____
☑ E-mail to: aadams@gulfoil.com, cgill@gulfoil.com

Condition upon receipt Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SC32732 1 of

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 2

Special Handling:
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: Andrew Adams
Gulf Oil LP
281 Eastern Ave
Chelsea, MA 02150
Telephone #: 617.884.5980
Project Mgr: Andrew Adams

Invoice To: Christopher Gill
Gulf Oil LP
80 William St, Suite 400
Wellesley, MA 02481-3705
P.O No.: _____ Quote/RQN: _____

Project No: Gulf Chelsea
Site Name: Gulf Chelsea Terminal
Location: 281 Eastern Ave, Chelsea State: MA
Sampler(s): Andrew Adams

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
7=CH3OH **8**=$NaHSO_4$ **9**=Deionized Water **10**=H_3PO_4 **11**=_____ **12**=_____

DW=Dinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water
O=Oil **SO**=Soil **SL**=Sludge **A**=Indoor/Ambient Air **SG**=Soil Gas
X1=_____ **X2**=_____ **X3**=_____

G= Grab **C**=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Total Recov. (Cd, Cr, Cu, Pb, Ni, Zn)*	LC50 **	Check if chlorinated
SC32732-01	Outfall 003	3-23	1600	G	SW				1	X		☐
↓ ↓	Outfall 003	3-23	1000	G	SW				1		X	☐
												☐
												☐
												☐
												☐
												☐
												☐
												☐
												☐

List Preservative Code below: none

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☑ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

- * Report metals down to MDL
- **LC50 sub to GZA
- Required Minimum Levels:
- Cd, Pb, Ni - 0.2 ug/L
- Cu - 0.5 µg/L
- Cr - 1 µg/L
- Zn - 5 µg/L

Relinquished by:	Received by:	Date:	Time:
Andrew Adams	Style Reid	3/23/17	11:00
Style Reid	[illegible]	3/23/17	1500
			2.9

Temp °C: Observed 0.0 / Correction Factor 0 / Corrected 0.0 / IR ID# 02

☐ EDD format: _____
☑ E-mail to: aadams@gulfoil.com, cgill@gulfoil.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☑ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Batch Summary

'[none]'

Aquatic Toxicity

SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705063

Microbiological Analyses

SC32732-01 (Outfall 003)

1705073

Semivolatile Organic Compounds by GCMS

1705073-BLK1
1705073-BLK2
1705073-BS1
1705073-BS2
1705073-BSD1
1705073-BSD2
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705079

General Chemistry Parameters

1705079-SRM1
1705079-SRM2
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705084

General Chemistry Parameters

1705084-BLK1
1705084-BS1
1705084-DUP1
1705084-MS1
1705084-MSD1
1705084-SRM1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705104

Volatile Organic Compounds

1705104-BLK1
1705104-BS1
1705104-BSD1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705113

General Chemistry Parameters

1705113-BLK1
1705113-BS1
1705113-DUP1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705119

Total Metals by EPA 200/6000 Series Methods

SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705143

Total Metals by EPA 200 Series Methods

1705143-BLK1
1705143-BS1
1705143-DUP1
1705143-MS1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705144

Total Metals by EPA 200 Series Methods

1705144-BLK1
1705144-BS1
1705144-DUP1
1705144-MS1
1705144-PS1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705173

General Chemistry Parameters

1705173-BLK1
1705173-BS1
1705173-MS1
1705173-SRM1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705207

General Chemistry Parameters

1705207-BLK1
1705207-BS1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705216

General Chemistry Parameters

1705216-SRM1
1705216-SRM2
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

1705454

General Chemistry Parameters

1705454-BLK1
1705454-BS1
1705454-DUP1
1705454-MS1
1705454-MSD1
1705454-SRM1
SC32731-01 (Chelsea Creek)
SC32732-01 (Outfall 003)

380670A

Subcontracted Analyses

BX93085-BLK
BX93085-LCS
SC32732-01 (Outfall 003)

S701962

Semivolatile Organic Compounds by GCMS

S701962-CAL1
S701962-CAL2
S701962-CAL3
S701962-CAL4
S701962-CAL5
S701962-CAL6
S701962-CAL7
S701962-CAL8
S701962-CAL9
S701962-CALA
S701962-ICV1
S701962-LCV1
S701962-LCV2
S701962-LCV3
S701962-TUN1

S702752

Semivolatile Organic Compounds by GCMS

S702752-CAL1
S702752-CAL2
S702752-CAL3
S702752-CAL4
S702752-CAL5
S702752-CAL6
S702752-CAL7
S702752-CAL8
S702752-CAL9
S702752-ICV1
S702752-LCV1
S702752-LCV2
S702752-TUN1

S703239

Volatile Organic Compounds

S703239-CAL1
S703239-CAL2
S703239-CAL3
S703239-CAL4
S703239-CAL5
S703239-CAL6
S703239-CAL7
S703239-CAL8
S703239-CAL9
S703239-CALA
S703239-CALB
S703239-ICV1
S703239-LCV1
S703239-LCV2
S703239-LCV3
S703239-TUN1

S703263

Volatile Organic Compounds

S703263-CCV1
S703263-TUN1

S703276

Semivolatile Organic Compounds by GCMS

S703276-CCV1
S703276-TUN1

S703277

Semivolatile Organic Compounds by GCMS

S703277-CCV1
S703277-TUN1